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Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

unnamed fault near Wreck Creek (Class A) No. 585

Last Review Date: 2003-09-03

citation for this record: **McCrory, P.A., compiler, 2003, Fault number 585, unnamed fault near Wreck Creek, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 03:04 PM.**

Synopsis	The unnamed fault near Wreck Creek has an onshore fault trace that is about 5-km long (McCrory, 1997 #6323; McCrory and others, 2002 #5864); it may extend to the northwest across Grenville Bay and connect with a fault exposed on Grenville Point, but such a connection is uncertain. This fault approximately marks the northern extent of a broad convergent zone associated with a major forearc block boundary. The onshore fault displaces gravels as young as late Pleistocene (McCrory, 1997 #6323).
Name comments	McCrory (1997 #6323) first recognized and mapped this unnamed fault near Wreck Creek. The mapped trace of the fault extends to the south-southeast from near the mouth of Wreck Creek and it may extend to the north-northwest across Grenville Bay and

	connect with a fault of uncertain age that is exposed in sea cliffs at Point Grenville. Such a connection, however, is uncertain.
County(s) and State(s)	GRAYS HARBOR COUNTY, WASHINGTON
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Neither the northwestward nor southeastern extents of the unnamed fault near Wreck Creek have been determined. As shown herein, the southeastern part of the trace (onshore) extends northwestward across Grenville Bay towards a bedrock fault exposed in the sea cliffs at Point Grenville, (Tabor and Cady, 1978 #6221), but a direct link between these onshore faults across the bay has not been documented. If continuous, the fault would be at least 10-km long.
Geologic setting	North of the unnamed fault near Wreck Creek, structures offshore shift progressively from an east-northeast orientation to a north-northwest orientation across a 6-km-wide area. The northwest-striking unnamed fault near Wreck Creek, occurs onshore and nearshore(?) directly east of the offshore shift in orientations. North of the shift in structural orientation, north-northwest-striking faults on the continental shelf generally do not project onshore; rather, they tend to lay offshore subparallel the coastline. The north-northwest orientation of structures in this region is consistent with subduction-related contraction, perhaps driven by interplate coupling far from the deformation front (McCrory and others, 2002 #5864). Some offshore faults to the north show evidence of ongoing contraction, disrupt the late Pleistocene erosional unconformity, and offset the seafloor. Some of these faults also elevate Neogene bedrock to the seafloor. For example, a fault about 20 kilometers west of the Queets River (plate 2I, shot point 9000 in McCrory and others, 2002 #5864) disrupts the seafloor and underpins local bedrock outcrops along the seafloor. Where north-northwest-striking faults of this region extend onshore, such as the unnamed fault near Wreck Creek, they displace late Quaternary marine-terrace deposits (McCrory, 1996 #6321; McCrory and others, 2002 #5864) along thrust and reverse faults that have offsets of as much as 0.5-m, with cumulative offsets up to 2 m. See Grays Harbor fault zone [#589] for

	discussion of east-northeast striking fault zones south of the unnamed fault near Wreck Creek. Offshore faults, which occur in the area where structures shift in orientation (discussed above) west of the unnamed fault near Wreck Creek, are associated with anticlinal folds. For most of these offshore faults, however, Quaternary activity cannot be documented because uppermost strata are pre-Quaternary in age; these offshore structures are not shown herein. A few short offshore fault traces associated with the transitional area, however, have documented Quaternary activity and are also not shown herein. One of these fault traces trends northeastward towards the mouth of the Quinault River and may be significant as it disrupts the seafloor and could possibly be part of an inferred fault that vertically offsets the (MIS 5) marine-terrace platform 27 meters in this area (McCrory, 1997 #6323). Onshore between the unnamed fault near Wreck Creek and the unnamed fault zone near and offshore of Aloha [#586] to the north, are two topographic ridges underlain by anticlinal folds that may be cored by blind thrust faults. To date, however, no Quaternary faults have been observed along these anticlines, so these structures are also not shown herein.
Length (km)	9 km.
Average strike	N58°W
Sense of movement	Thrust *Comments:* Several minor southwest and northeast dipping thrust faults are associated with the linear topographic ridge that expresses the unnamed fault near Wreck Creek (McCrory, 1996 #6321; McCrory and others, 2002 #5864).
Dip	37°- 68° *Comments:* 37?SW - 68?NE for various minor faults associated with this unnamed fault (McCrory, 1996 #6321; McCrory and others, 2002 #5864). Main dip direction is inferred to be southwestward based on asymmetry of topographic ridge and analogy to better-documented fault-ridge relations to the south.
Paleoseismology studies	

Geomorphic expression	The unnamed fault near Wreck Creek underlies a 5-km-long topographic ridge that rises to an elevation of 120 km.
Age of faulted surficial deposits	The age of faulted deposits at the surface varies from Quaternary to late Quaternary.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Late Quaternary (< 150 ka) age assignment is based on lithofacies correlation to radiocarbon-dated MIS 2 glacio-fluvial deposits nearby (Moore, 1965 #6326). Herein the known, onshore part of this fault is also assigned a late Quaternary age category. However, the upper age limit of this category is shown herein as <130 ka.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* At this time, no information has been reported on slip rate for this fault. Based mostly on this lack of information, a conservative rate of <0.2 mm/yr is tentatively assigned herein.
Date and Compiler(s)	2003 Patricia A. McCrory, U.S. Geological Survey
References	#6321 McCrory, P.A., 1996, Tectonic model explaining divergent contraction directions along the Cascadia margin, Washington: Geology, v. 24, p. 929-932. #6323 McCrory, P.A., 1997, Evidence for Quaternary tectonism along the Washington coast: Washington Geology, v. 25, no. 4, p. 14-20. #5864 McCrory, P.A., Foster, D.S., Danforth, W.W., and Hamer, M.R., 2002, Crustal deformation at the leading edge of the Oregon Coast Range block, offshore Washington (Columbia River to Hoh River): U.S. Geological Survey Professional Paper 1661-A, 47 p., 2 pls. #6326 Moore, J.L., 1965, Surficial geology of the southwestern

	Olympic Peninsula: Seattle, University of Washington, unpublished M.S. thesis, 63 p. #6221 Tabor, R.W., and Cady, W.M., 1978, Geologic map of the Olympic Peninsula, Washington: U.S. Geological Survey Miscellaneous Investigations Map I-994, scale 1:125,000.